

GPS Vehicle Tracker

USER MANUAL

(Model: TK111)



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Preface

This Mini GPS Vehicle Tracker is the most cost-effective device to track your vehicle or the other objects. It has very small size, so it can be installed in very secret place. The installation & usage is very easy.

This Mini GPS tracker communicates with user by SMS, not by GPRS, so it can work alone & the management center is not a must. It is specially designed for individual vehicles, user could use any GSM mobile phone to supervise, control and locate the car without the third party.

On the other hand, if the management center is set up, many useful & interesting functions can be realized, such as monitoring many vehicles together by map, converting the GPS coordinate into the real address automatically. If user has MAPINFO map with detailed landmarks, the software can translate the car's location automatically into the real physical address (such as city name, street name, building, etc.), then send this real physical address to user's mobile by SMS.

Read it Firstly:

Please read this manual thoroughly before you use the device; please keep it for future reference.

Attention:

(1) Please keep the device away from the water, humidity, high temperature, heavy dust or strong magnetism.

(2) Please prepare a valid GSM SIM card in advance.

Warning:

We **strongly** suggest user let the professional car electrician to install the system.

Functions & Features

- (1) Check the car's location, speed & direction via SMS;
- (2) Check the location directly by the Google map's URL;
- (3) Cut off the car power/fuel supply by SMS, to stop the car;
- (4) Movement Alert:
Once the car is parked, you can send the SMS instruction to put the system in movement alert status. Then, if the car is moving out about 80 meters, the system will send SMS to inform you. It is a very useful function, which enables the tracker to work as the car alarm too;
- (5) Geo-fence Alert:
User can set a certain zone by SMS, once the vehicle oversteps the fence, the alarm will send SMS to inform you;
- (6) Over-speed Alert.
User can set a certain speed limitation by SMS. Once the vehicle is running over this speed, the system will send SMS to inform you;
- (7) Built-in rechargeable backup battery. If the system's main power supply is cut off or low enough, system will send SMS to warn you;
- (8) Two kinds of location information; user could locate the precise location by GPS. If there is no GPS signal, user could also locate the car by CPS (cellular positioning system - located by GSM network)
- (9) Monitor the voice around the car via telephone;
- (10) Anti-robbery switch, send out SMS for help in case of hijack; (optional function)
- (11) Track the car by SMS or by online mapping (The software is optional).
- (12) Flexible design, the system can work alone without support of center. If the center is set up, the functions can be much stronger, you can monitor & control many vehicles in the center, and the information of vehicle's location can be more detailed and friendly.
- (13) Anti-tamper design in small size, stable, reliable & easy installation.

System Setup

User can send SMS instructions to operate the system by any mobile number, but if he/she wants to receive the alert SMS message from the system, the following SMS messages must be sent to the tracker firstly:

Each TK111 has 2 operation passwords: the center password (default: 666666) and the user password (default: 111111). The SMS center can operate the tracker with the center password, and user can operate the tracker by user password. They are separated & will not affect each other.

Please insert a valid GSM SIM card inside the unit. After finishing the installation according to the wiring diagram, please setup the system as following (*CEN must be in capital letter*):

Send the SMS to the Tracker.

This instruction is used to authorize the alarm-received mobile numbers:

CEN666666*10Mobile No.1*20Mobile No.2*30Mobile No.3*

For example, if the user wants to receive the alarm signal with his mobile (+234)8031234567, and wants his wife's number (+234)8057654321 to receive the alarm signal too, he can send the following SMS to the alarm:

CEN666666*108031234567*208057654321*30*

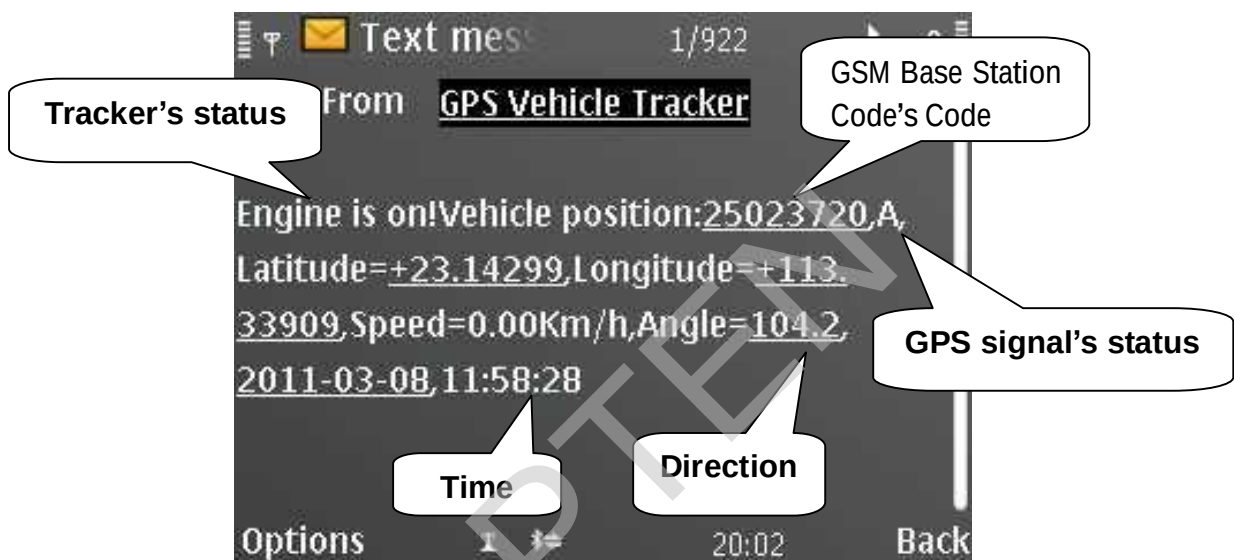
(Mobile No.3 is set as the modem No. of the management center, or let it blank.)

Explanation on SMS Message

When the alarm is triggered, it will send the alert SMS message to the authorized mobile. This SMS alarm message includes:

- ² Alarm type. "Movement Alert", "SOS alarm", "Power off alert", etc.
- ² Base station's code of GSM networks. The GSM operator can locate the car's position by this base station code.
- ² Latitude & longitude. User could locate the car's precise position by help of GOOGLE MAP (<http://maps.google.com/>) or GOOGLE EARTH (Download link: <http://earth.google.com/>).

- ² GPS signal's Status: A: GPS's signal is available, the car is at broad outside place; V: GPS's signal is shielded, the car is at the underground; H: there is no GPS signal or GPS's receiver is damaged
- ² Speed. The car's speed (=KM/H).
- ² Direction: The car's direction is showed in this message. (In coordinates, start from line of the north direction, turn the angle clockwise.)



Example: The above message shows that: the car is stopped, engine is ON. The GSM base station code of the car is 25023720, the car is at outdoors & GPS signal is available (A), the latitude is +23.14299, the longitude is +113.33909, the car's speed is 0.0Km/h, and the car's direction is southeast(start from the north, 104.2 degree clockwise).

How to Operate It

Arm/Disarm by Phone Calling

User could also use the **first** alarm-received mobile phone to call the system SIM card number, so as to arm/disarm the system.

Arm: After hearing several ring tones, if the systems hang up the call automatically, and call back you, it means that the system is armed.

Disarm: After hearing several ring tones, if the system hangs up the call automatically, and don't call back you, it means that the system is disarmed.

Note:

- (1) There is no communication fee for this operation, it is a very convenient way to arm & disarm the system.
- (2) The SIM card inside the device must have the function of Caller ID Display.
- (3) Only the 1st authorized mobile phone can realize this function.

SMS Control Instructions

The format of the instruction is:

User Password(***)+ Control Code(XXX)**

The default user password is 11111.

If the user password is changed, user should send the SMS instruction with the new user password instead of 11111.

XXX is the control code, all the letters must be capital letters or small letters.

There is no space between the user password & the control instruction.

I 11111PSWnnnnnn

This instruction is used to change the user password. The length of the user's password is 3~6 digits. Users are suggested to change to the new password in use.

Example: User sends the SMS "11111PSW12345" to the system SIM card number, and gets the confirmed SMS "11111PSW12345" in 3 seconds. It means that the user

password has been changed to 12345.

I **111111ARM**

This instruction is used to arm the system.

The system will send back the confirmed SMS to you, such as “System Armed! Vehicle position:”

I **111111DSM**

This instruction is used to disarm the system.

The system will send back the confirmed SMS to you, such as “System Disarmed! Vehicle position:”

I **111111CHK**

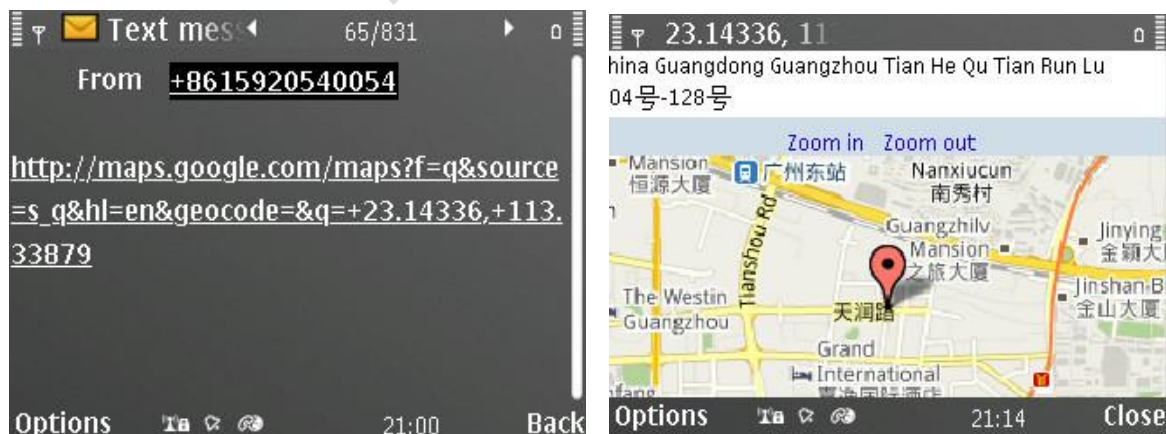
This instruction is used to inquiry the vehicle’s location & system’s status.

The system will send back the SMS, includes the similar information, such as “System Disarmed, Engine off! Door Opened! Vehicle position:”

I **111111MAP**

This instruction is used to the location with Google Map Link.

Upon receiving the SMS command, the tracker will automatically send back the SMS including the Google map’s URL, user can use smart phone (GPRS data service is enabled) to open the URL link, the car’s location will be showed on the Google map.



I **111111STP**

This instruction is used to cut off the car’s power supply or fuel supply, so

as to stop the car.

The car will be controlled to stop gradually.

Attention: It is very dangerous to stop the car when the vehicle is running at high speed. We do not take any responsibility to the consequence caused by this action.

I **11111STPN**

This instruction is used to stop the car under the condition of speed limitation.

If the car is running at speed higher than N (KM/H), the instruction will not be carried out. System will send back feedback SMS "No parking, vehicle ..."; If the car's speed is less than the value N , it will be controlled to stopped gradually.

After you send 11111STPN to the system already, from then on, if you send 11111STP, it will carry out this operation (11111STPN) always.

You can send **11111STP0** to disable this function, from then on, if you send 11111STP, the car will stop immediately.

Example: N =30. The car is running at speed of 50KM/H, user send 11111STP30 to system. The system will send back SMS "No parking." to warn user that the condition is not met. Once the car's speed is about 29KM/H, the system will automatically carry out this instruction & stop the car.

I **11111RES**

This instruction is used to restore the car to normal status after stopping the car.

I **11111MONP**

This instruction is used to monitor the voice around the car. The SIM card inside the system pays for the communication fee.

The P is the telephone which is used to monitor the voice. When user send out this SMS to the system, the system will call back the telephone P, user could listen in the voice around the car upon picking up the call. If user wants the tracker call back the present phone, the P can be empty, such as 11111MON, that is OK

Example: P =13780012345. If user sends 11111MON13780012345 to system, the system will call back the phone 13780012345 immediately. Once upon pickup the call

from the system, user can hear the voice around.

I 111111MON!

This instruction is used to monitor the voice around the car. The user's telephone pays for the communication fee.

Example: User uses the mobile 13780012345 to send 111111MON! to the system. The system will send back the message: "Ok, please call me in 2 minutes!". If user calls the system via the mobile 13780012345 inside 2 minutes, the system will be automatically connected, and user can monitor the voice around.

Movement Alert

111111MOV0 to disable the movement alert

111111MOV1 to enable the movement alert, the present location is the center.

111111MOV? To check the center's position.

Once the system is armed, the movement alert will be automatically enabled. Once the system is disarmed, the movement alert will be automatically disabled.

Usage: This function enables the tracker to work as a GSM car alarm.

Example: After the car is parked, you can use the 1st authorized mobile phone to call the system. The system will be armed & the Movement Alert function is enabled automatically. Then, once the car is moved about 30 meters away from the parking location, the system will immediately send SMS to warn you.

Geo-Fence

Instruction: **111111FENx(XL:a,YL:b,X:c,Y:d)**

Or **111111FENxXL:a,YL:b,X:c,Y:d**

If x=0, disable the function of geo-fence;

If x=1, enable the function of geo-fence;

XL:a, a is latitude(degree), the range of the value is 0-90)

YL:b, b longitude (degree), the range of the value is 0~180)

X:c, c is the distance of latitude (Meter)

Y:d, d is the distance of longitude (Meter)

Format of SMS instructions:

111111FEN? Check the setting of geo-fence

111111FEN0 Disable the Geo-fence

111111FEN1 Enable the geo-fence, using the parameters of the previous setting

111111FEN1() Enable the geo-fence, using the latitude & longitude of present location, the distance of latitude & longitude are 1000 meters.

111111FEN1(X:c) only change the distance of latitude, the other parameters keep the same.

111111FEN1(Y:D) only change the distance of longitude, the other parameters keep the same.

The function of geo-fence does not have relation with Arming or Disarming.

Example: If the fence is a circle with Radius of 500meters, the coordinates of the circle's center is: latitude:+23.1400, longitude:+113.4500, then the SMS instruction is: 111111FEN1(XL:23.1400,YL: 113.4500,X:500,Y:500). If the vehicle is running across the boundary of the fence, the system will automatically send SMS to warn you.

Over-speed Alert

111111SPD:X x is the speed in KM/H , maximum value is 250KM/H

(For example: 111111SPD:60, if the car speed is over 60KM/H, it will send SMS to warn you)

111111SPD:? to check the setting of over-speed alert.

How to disable this function: You can send 111111SPD:250 to disable this Over-speed Alert

Change the Time Zone

111111ZON:T T is the time zone in minutes.

Example:

111111ZON:480 : time zone is 8

111111ZON:-60 : time zone is -1

Automatic Report by SMS

111111RPT:NNN:T

NNN represents the 1-3 alarm-received phone no. (N=1 or 0, 1: enable, 0: disable)

T is the time interval in minutes. If T=0, to disable the auto-reporting

Example:

111111RPT:001:5

Tracker sends location by SMS to 3rd number for every 5 minutes;

111111RPT:101:10

Tracker sends location by SMS to 1st & 3rd number for every 10 minutes;

Change the Center Password

CEN666666*40new password*

This instruction is used to change the center's password. There is no need for the user to change it if it is not connected to center.

Example:

CEN666666*40777777*

Specifications

Size of the main unit:	7.5*5.4*2.5 (CM)
Weight of the main unit:	0.1KG
Working temperature:	-20 ~ 70℃
Humidity:	0 ~ 95%
GSM frequencies:	Dual-band:900MHz/1800MHz
GPS chip:	Latest SiRF-Star III chipset
Working voltage:	12 VDC
Power Consumption:	Working current: 20~1000mA; Static current: 20~30mA; Peak current of sending GSM signal: 1000~1200mA; Peak current of receiving GSM signal: 600~800mA;
Inside Backup battery:	Rechargeable 3.7V 800mAh Li-ion battery

FAQs & Troubleshooting

FAQ	Troubleshooting
Call the tracker, it does not ring	(1) The GSM SIM card has no credit; (2) The SIM card is protected by PIN code; (3) Fix the GSM antenna to open place to test; (4) The SIM card is placed correctly in the slot; (5) Check the connection of the GSM antenna, or change another GSM antenna to test;
Call the tracker, it rings, but it doesn't send back response SMS	(1) The user password is wrong, please use the correct password or reset the password to test; (2) Low power, please use outside 12VDC power supply to power on the unit to test
The mobile can not receive the alarm informations. The other functions are OK.	(1) The SIM card inside the device has no credit; (2) The SMS instruction is not in correct format; (3) The mailbox of the user's mobile is full;
No GPS signal or GPS signal is weak	(1) Fix the GPS antenna to open place to test; (2) Please check the connection of the GPS antenna; (3) Change another GPS antenna to test; (4) In cloudy condition, it is a little hard to get the GPS signal, and the GPS coordinate might have some errors.
I can check the location, but I can not get the alert SMS when the car moves	(1) Please setup the system firstly. (authorize SMS-received mobile number, etc); (2) In arming status, the device only warn you once the car moves at about 50 meters away from the parking place;
I can not stop my car	(1) Check the format of the instruction <u>*****STP</u> is correct or not? (2) Replace another relay to test. (3) The relay's control output is suggested to control the power supply loop of the fuel pump. In some cars, it can also be used to control the engine ignition loop.
I can't arm/disarm system by phone call	(1) Only the 1st authorized mobile number can realize this function; (2) The SIM card inside the device must have the function of Caller ID Display.

Installation

Packing List



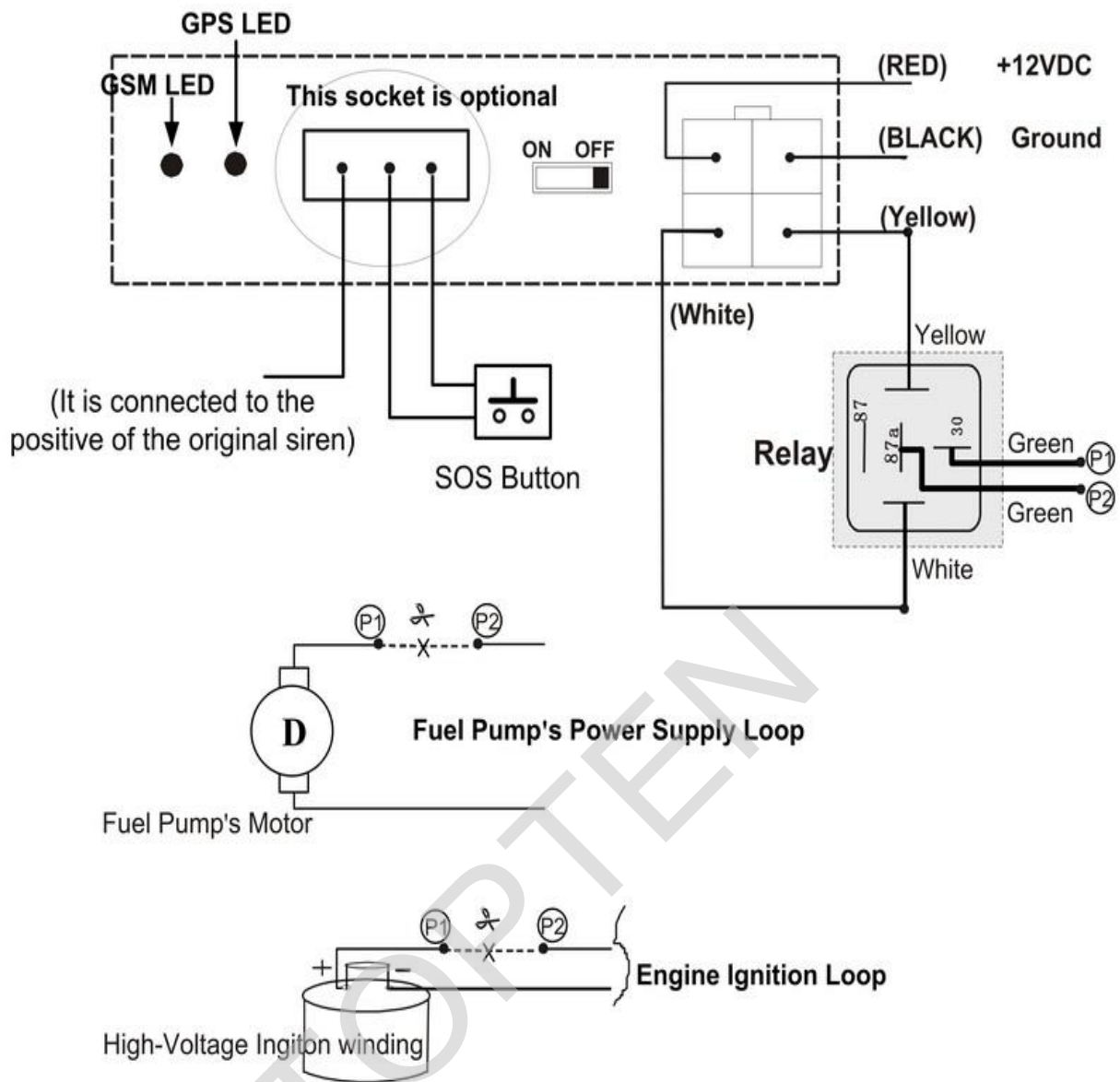
Standard package:

Component name	Quantities
Main unit	1 pc
GPS antenna	1 pc
GSM antenna	1 pc
4-pins wiring harness	1 pc
Cut-off relay	1 pc
Microphone	1 pc

Optional component (not included in the standard package):

Anti-robbery SOS Switch & Integration line with the original car alarm

Wiring Diagram



Notes:

- (1). The relay's control output (2 green lines, no polarity) has 2 kinds of connections. It can be used to cut off the engine ignition loop or the fuel pump's power supply loop. It is suggested to control the fuel pump.
- (2). Please turn the switch to ON position. It is the switch of the inside backup battery.

Important Notice on Installation

- ² We strongly recommend you to ask the professional car electrician to do the installation.
- ² Please prepare a valid GSM SIM card in advance.
- ² IMPORTANT: Please do not insert or pull out the SIM card when the main unit has power. Before doing this operation, please disconnect the outside power supply lines, and turn off the internal backup battery's switch firstly. The wrong operation might damage the main

unit.

- ² Please fix the main unit at secret place to avoid being destroyed by theft. Please keep it away from the high-temperature, humidity or strong magnetic object. Please fasten it tightly.
- ² While mounting the GPS antenna, the flat magnetic side must be placed downside. There could not be any metal or shielded obstacles around the upside of the GPS antenna, so that it can receive the satellite signal from upside the sky very well, the GPS antenna should be placed at broad & secret place too. It should be drew straight and kept away from the sound box or speaker.
- ² While mounting the GSM antenna, it should be placed at broad & secret place where there is no shielded obstacle.
- ² The GSM antenna can't be placed along with the GPS antenna in parallel. It should be drew straight and kept away from the sound box or speaker.
- ² After installation, please test the system & make sure that it can GSM signal & GPS signal very well. Otherwise, fix the GSM antenna or GPS antenna at other places until the signals are OK.
- ² For security, please fix the GSM & GPS antenna in secret places.

Recommended places: (1).Downside the fore windshield class
(2).Downside the dashboard (3).Downside water brusher (no metal coat)
(4). Inside the upper door edge which is nearby the driving room.

Appendix I: How to Track the Location on Internet

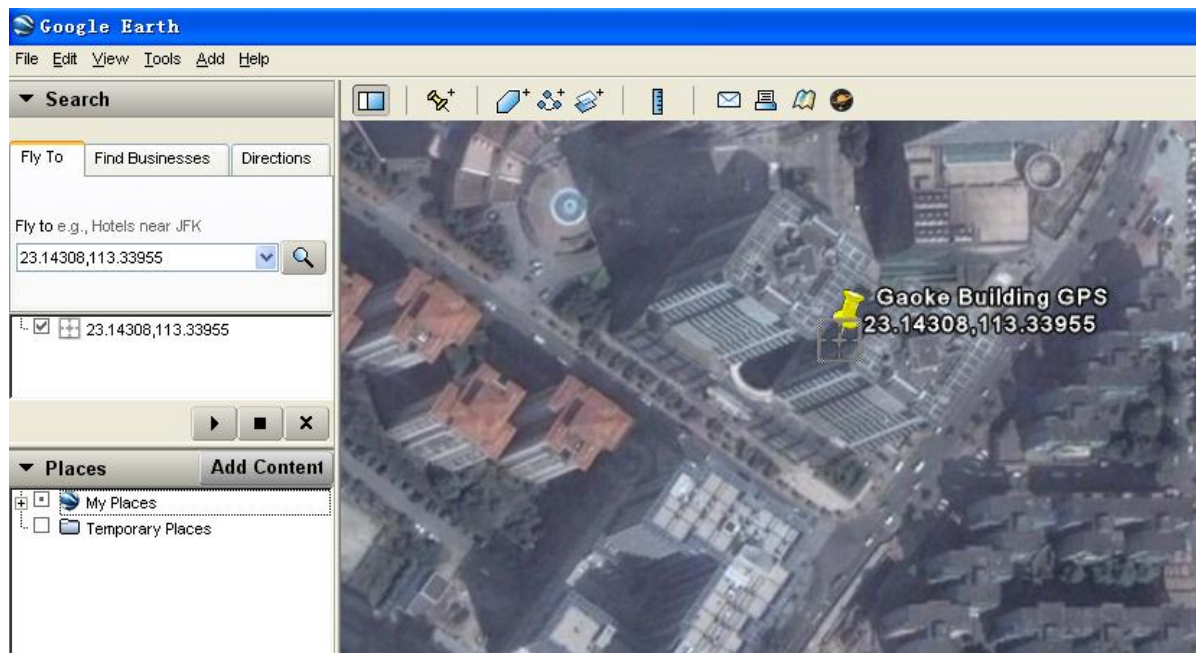
How to Track the Car

Track the Car by SMS & Google Map

The user could get SMS alarm message from the system, this message includes 2 kinds of location information:

(1). Base station's code of GSM signal relay tower. The GSM operator can tell you the location by this code because they have the related database. In some countries, this function is not open to the public.

(2). The GPS's latitude & longitude, user could track the car's precise location after inputting them in the GOOGLE EARTH (please download it from <http://earth.google.com>) or <http://maps.google.com> (Noted, please add the minus before X & Y if they have)



Track by the TS01 Center Software & MapInfo Map (Optional)

This function is not the standard function. It needs the support of the center. To setup the center, user should buy the center software, GSM Modem & MAPINFO map (or use free Google Map). **The center can translate the GPS coordinates into the real address (such as: city, street...etc) automatically.** By this way, the user can directly use mobile to send a SMS command, then he can get the car's real address by SMS. There is no need of internet connection. It is very convenient for user.

